Special Articles and Association Notes

The Manitoba Medical Association Review

Formerly the Bulletin of the Manitoba Medical Association

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Minutes of Executive Meeting

Summary of minutes of a meeting of the Executive Committee of the Manitoba Medical Association held in the Medical Arts Club on Tuesday, January 17th, 1939, at 6.30 p.m.

Present.

Officers and Members of Executive Committee:

Dr. W. S. Peters (Chairman)	Dr. O. C. Trainor
Dr. W. G. Campbell	Dr. E. W. Stewart
Dr. W. W. Musgrove	Dr. C. E. Corrigan
Dr. Geo. Brock	Dr. O. J. Day
Dr. C. W. Burns	Dr. W. F. O'Neill
Dr. C. B. Stewart	Dr. C. W. MacCharles.

Chairman, Committee on Sociology:
Dr. E. S. Moorhead.

General Secretary, Canadian Medical Association:
Dr. T. C. Routley.

Following dinner the President called the meeting to order and welcomed Dr. Routley as a guest of the Executive Committee:

Minutes of Last Three Executive Meetings.

It was moved by Dr. O. C. Trainor, seconded by Dr. C. B. Stewart: THAT the minutes of the last three meetings be taken as read. —Carried.

Health Insurance: *Report of Committee on Sociology.*

A questionnaire with regard to Health Insurance had been received from Dr. Wallace Wilson, Chairman of the Committee on Economics of the Canadian Medical Association. A report was submitted by the Committee on Sociology (Economics) of the Manitoba Medical Association, and this report was considered in detail and amended in some respects.

The first part of the report dealt with the principles adopted by General Council of the Canadian Medical Association at the Annual Meeting at Ottawa in 1937, and printed in the September issue of the Canadian Medical Association *Journal* of that year. There were 15 clauses and all were accepted with the exception of 6, 10, 12 and 18 which were amended as follows:

(6) That there be a Health Insurance Fund and that "Regional Medical Officers," to act as supervisors and referees be appointed, paid and controlled by the Central Board or Commission.

(10) Deleted.

(12) Amended as follows:

That the medical benefit be organized as follows:

(a) Every qualified licensed medical practitioner to be eligible to practice under the Plan.

(b) The insured person to have freedom of choice of doctor.

(c) The medical service to be based upon making available to all a complete medical service, which would include health supervision and the treatment of disease. (A complete medical service consists of medical care, general and specialist, hospitalization, ancillary treatments, nursing, dental services and health.

(18) Amended as follows:

That the volume of work demanded from and the remuneration to members of the various professions be such as to assure an adequate standard of medical service.

The second part of the report consisted of a memorandum "Some Problems in the Consideration of Health Insurance." These problems were divided into "Accepted" and "Controversial." The first group consisted of points about which there was not likely to be a difference of opinion, and the second group consisted of items which would require considerable discussion before they could be settled.

Contract Practice.

With regard to the general principles that should form the basis of all contracts, it was suggested that the Canadian Medical Association should set up standards for contract practice. It was agreed that the Manitoba Medical Association should attempt to secure information with regard to contract practice in the province.

Lodge Practice.

It was agreed an attempt should be made to secure information with regard to Lodge Practice in the province.

Voluntary Health Insurance.

The Committee had not as yet had time to deal with the problem of Voluntary Health Insurance.

It was moved by Dr. E. S. Moorhead, seconded by Dr. C. W. Burns: THAT the report of the Committee on Sociology, as amended, be adopted, and that a copy be forwarded to the Chairman of the Committee on Economics of the Canadian Medical Association. —Carried.

Dr. Routley pointed out that this plan that was considered was tentative and it was the intention of the Canadian Medical Association to secure an opinion from each of the Provincial Associations.

Report of Committee on Constitution and By-Laws.

In the absence of Dr. F. D. McKenty, Chairman of the Committee, the Secretary read the report of a meeting of the Committee held on January 9th. Dr. R. I. Harris, Chairman of the Committee on Constitution and By-Laws of the Canadian Medical Association, had written a letter suggesting that a discussion could be carried on between the Committee on Constitution and By-Laws of the Manitoba Medical Association and the corresponding Committee of the Canadian Medical Association with a view to clearing up the differences of opinion with regard to federation. At the meeting of this Committee the following motion was passed: THAT Dr. McKenty be instructed to write to Dr. Harris and ask for his criticisms of the report submitted to the Annual Meeting of the Manitoba Medical Association.

The report of the Committee on Constitution and By-Laws was adopted.

Brandon-Cornwallis Health Unit.

Correspondence with regard to the Brandon-Cornwallis Health Unit was considered, and reports of the Legislative Committee and Committee on Sociology adopted.

Salaries to State Medical Officials.

A letter had been received from the Canadian Medical Association asking if the Manitoba Medical Association would be in favor of the Canadian Medical Association inquiring into salaries paid to state medical officials and employees of institutions. It was agreed that it would be advisable for this inquiry to be carried out and the Manitoba Medical Association Executive agreed to co-operate.

Rural Relief Cases.

The Committee on Sociology reported that a questionnaire is to be sent out to rural practitioners.

Letter from Secretary of Honorary Attending Staff of St. Boniface Hospital.

A letter and memorandum from the Secretary of the Honorary Attending Staff of St. Boniface Hospital dealing with the question of the responsibility towards patients as it affects the hospital, the interne and the attending doctor, was referred to the Executive Committee of the Canadian Medical Association for an opinion.

Annual Meeting.

Dr. Routley explained that he would like an expression of opinion with regard to the dates that would be most suitable in September for the Manitoba Medical Association Annual Meeting. It was agreed that the Association would accept whatever dates were suitable after Dr. Routley had consulted with the other three western provincial associations.

Appointment of Representatives to Workmen's Compensation Referee Board.

A motion was passed instructing the officers to make the necessary appointments.

Senior Members.

A Committee was appointed to suggest names for senior membership in the Canadian Medical Association.

Appointment of Representatives to Cancer Relief and Research Institute.

The officers were instructed to appoint the necessary representatives.

Representative from Winnipeg Medical Society on Manitoba Medical Association Executive.

A letter was read from the Winnipeg Medical Society advising that Dr. O. J. Day had been appointed their representative on the Executive Committee of the Manitoba Medical Association.

Treasurer's Report.

A motion was passed authorizing the treasurer to be bonded, to invest certain funds in bonds and to pay an honorarium to the Editor of the *Review*.

The remaining items of business on the agenda were deferred to the next meeting of the executive committee.

The meeting then adjourned.

Visit of Secretary of Canadian Medical Association

Dr. T. C. Routley, General Secretary of the Canadian Medical Association, visited Winnipeg on January 17th and 18th. During his visit he

attended the meeting of the Executive Committee on the evening of Tuesday, January 17th. In addition he attended meetings of the following Committees and groups: Legislative Committee, Sociology Committee, Radio Committee, Victorian Order of Nurses, Programme Committee, Maternal Mortality Committee, Education Committee, Committee on Ethics, Cancer Relief and Research Institute and the Canadian Society for the Control of Cancer.

Maternal Welfare Committee

A Suggested Service on Obstetric Problems

The Maternal Welfare Committee of the Manitoba Medical Association have decided to initiate a system of replies to physicians enquiring for information on obstetric problems.

Any doctor desiring information about any general obstetric problem or about the care of a specific type of case, is invited to write, outlining the problem. After consideration the committee will reply giving whatever advice they consider may be helpful.

Problems which bring out points of general interest to the profession will be published in the *Review*, but the name of the doctor sending in the letter will be withheld.

The Committee hope that by initiating such a service they may be able not only to help the individual physician but also to stimulate interest in obstetric problems. They also expect to derive from such letters information which will enable the Committee to appreciate better the type of work they should be doing.

Communications may be sent to the Secretary, Manitoba Medical Association, 102 Medical Arts Building, and will be handed to the Maternal Welfare Committee for consideration and action.

Annual Meeting

Scientific Programme

Members of the Manitoba Medical Association are invited to submit papers for the scientific programme of the annual meeting in September, 1939. Those wishing to deliver papers should forward copies or an abstract. Applications will be received up to May 1st. The selection will be made by the Scientific Programme Committee.

Suggestions from members as to particular subjects which they would wish to have discussed are also invited.

Communications may be sent to the Honorary Secretary, Manitoba Medical Association, 102 Medical Arts Building, Winnipeg. They will be sent on to the Committee for consideration and action.

Sectional Meeting American College of Surgeons

Fort Garry Hotel, Winnipeg March 29-30-31, 1939

There will be a sectional meeting of the American College of Surgeons at the Fort Garry Hotel, Winnipeg, on March 29th, 30th and 31st, 1939.

This sectional meeting includes the members from Minnesota, South Dakota, North Dakota, Western Ontario, Manitoba, Saskatchewan and Alberta.

There will be clinics at the hospitals, panel discussion and hospital conferences.

Among the distinguished clinicians taking part will be Dr. George Crile, Cleveland, Chairman of the Board of Regents of the American College of Surgeons; Dr. Howard C. Naffziger, San Francisco, Professor of Surgery, University of California, and President of the American College of Surgeons; and Dr. Malcolm T. MacEachern, Associate Director of the American College of Surgeons.

A free public meeting will be held in Grace Church at 8.00 p.m. on March 31st.

Department of Health and Public Welfare

NEWS ITEMS

The following is an article entitled "Posture" written by Lucy Porter Sutton, M.D., Assistant Professor of Pediatrics, New York University Medical College, and recently published in "Preventive Medicine":—

"Theoretically, any child who has a sturdy heritage, is well nourished and is brought up in a good environment, will have an efficient body. Some children who have, of these three factors, only the sturdy physique, have good posture. Others have excellent care and environment, but because they are built on thin and scraggly lines achieve good body mechanics or posture only through conscious effort. However, other factors enter into the production of poor posture, some of them as uncontrollable as the inheritance of body build. Prolonged illness, or in small children short acute illnesses, fatigue, worry, shyness, all may be the precipitating cause of poor posture.

"Why some babies have firm muscles and others fed similarly are flabby and thin, or flabby and fat, is a mystery to pediatricians. Even more inexplicable are the husky babies who are fed and cared for contrary to the way we think is best. In other words, how a child is going to turn out is somewhat on the laps of the gods. Even so, a fundamentally inefficient body can be made efficient, and certainly every controllable factor should be considered in order to prevent bad posture.

"There are two good reasons for aspiring to good posture. One is the esthetic. A middle-aged man or woman with an unconcealable abdomen and round shoulders is not a lovely sight, particularly in profile. Many people whose faces are not beautiful give the appearance of good looks because of the beauty of their carriage. A thin child who stands straight does not look as pathetic as the one whose abdomen is in front of his flat chest, whose back caves in; nor does the erect overweight child look so fat. Beyond this is the fact that prolonged strain of unevenly used muscles may and often does lead to structural and physiological abnormality.

"The physiological abnormalities are those first noted in childhood, particularly fatigability, constipation and poor nutrition. It may be difficult to decide whether the poor posture causes or is caused by these. If both are present there is a vicious circle, so that both must be treated at the same time. If all mothers realized in how many ways insufficient rest affects their children, and if physicians would take the time to inquire in detail about the child's daily regime there would be fewer irritable and poor postured children. A common experience is encountered when at about the age of six children first go to school. Up to then it is relatively easy for the mother to see that the child gets enough sleep; if he goes to bed late, he sleeps late in the morning and is out of the way when she does her work. He is not used to regular hours of sleeping, but gets enough. Suddenly at the time when he is losing his baby chubbiness, and is lengthening out, he is precipitated into a regime of six hours of school, a hurried lunch hour, and no time to catch up on sleep if he stays up late—as most New York City public school children do. Only the special classes for handicapped children arrange for rest periods in the afternoon. It is conceivable that we would have fewer of the handicapped if all could have this extra daily rest.

"Several small details appear to help a child develop with good posture if attention is paid to them from the time they are born. For instance, the bed should always be firm and flat with no sagging and no pillow. Shoes should be flexible and designed only for protection until the child has lost the fat pads under the longitudinal arch. After that, at least for a city child, the soles should be shaped so that the leather of the uppers comes under and close to the arches, thus giving a certain amount of support. High shoes are not necessary. The shape of the shoe should be such that the weight of the body will not fall on the inner border of the foot. Clothes should never be tight. Elastics around the middle just below the ribs make the stomach stick out. Garters for long stockings fastened to waists pull the shoulders down and forward, since children always want their clothes tight. In other words, care should be taken that none of the details of a child's environment constitute a handicap to good posture. Furniture obviously enters into the matter. Chairs and tables should be of such size and shape that the child will not be tempted to slump.

"The effect of food on the development of good posture except in the case of rickets is uncertain. Vitamin D can, of course, prevent this cause of prominent abdomen, weak feet and scoliosis. In some children it seems that a diet which includes large amounts of starchy foods produces enlarged abdomens. In others too much milk seems to do the same thing.

"Poor posture may be directly caused by defective vision or eye strain, or by diminished hearing. Children, at least by the time they enter school, and periodically thereafter, should have competent and thorough examination of both eyesight and hearing. Either of these handicaps may be present to a degree which constitutes a handicap to the child even when not detectable by ordinary examination.

"Too little attention has been paid to the psychological causes of poor posture. A child who is doing poor work in school, who has a secret sorrow, who thinks he is misunderstood or who has been frightened often shows it in his hang-dog position. If the trouble can be straightened out promptly, the posture may take care of itself. If it is of long standing, positive measures will have to be taken not only to get at the cause of the emotional difficulty, but to get the body back into good shape. The psychological care of the child should be so reasonable and understanding that he will not develop a state of mind which will be reflected in his posture.

"An important reason for paying attention to posture in early childhood is the fact that structural permanent bony changes may take place as a result of long standing functional poor posture. The most common are scoliosis and weak feet both of which may greatly handicap the individual in his physical activities. Watching many children over a period of years shows clearly that many in the pre-adolescent years develop functional scoliosis of varying grades. Whether this is to become permanent in a given child cannot be foretold. Many, as they get past the period of rapid body changes and difficult adjustments, will lose their physical evidences of turmoil. In others the deformity will increase and become permanent. The obvious answer is that all children should ideally be given adequate consistent and intelligent instruction in good body mechanics. School seems to be a good place to do this. The value of such training has been demonstrated in certain private schools and in the public schools of Boston.

"Studies of the body mechanics of young people in high schools and colleges have shown all too clearly the need for more and better attention to posture in the elementary schools, and before. The type of attention which we think helps a child develop normally in this respect is detailed and time consuming. Because most children need it, it is easy to become discouraged, or so used to seeing children with bad posture that its presence does not quite penetrate our consciousness.

Posture is definitely something of which all those who deal with children should be aware in our ideal of helping in the development of a healthy and physically efficient race."

COMMUNICABLE DISEASES REPORTED
Urban and Rural — January, 1939

Occurring in the Municipalities of:

Mumps: Total 170—St. James 78, Winnipeg 70, Kildonan East 12, Unorganized 3, Kildonan West 2, Morris Town 2, Brandon 1, Strathclair 1, Tuxedo 1.

Scarlet Fever: Total 145—Winnipeg 70, Brandon 21, Rivers 10, Transcona 6, Rhineland 5, Miniota 4, Brooklands 3, Flin Flon 3, Kildonan West 3, Macdonald 2, St. Vital 2, Unorganized 2, Woodworth 2, Assiniboia 1, Boissevain 1, Eriksdale 1, Fort Garry 1, Kildonan North 1, Louise 1, Oakland 1, Pembina 1, Portage City 1, Roland 1, The Pas 1, Turtle Mountain 1.

Measles: Total 127—Argyle 28, Lorne 19, Kildonan West 14, Roblin Rural 14, Stanley 8, Blanshard 6, Louise 5, Unorganized 5, Winnipeg 5, Brandon 4, Pembina 3, Rhineland 3, St. Clements 3, Norfolk South 2, Springfield 2, Boissevain 1, Flin Flon 1, Portage City 1, Portage Rural 1, St. James 1, Turtle Mountain 1.

Chickenpox: Total 117—Winnipeg 20, Unorganized 18, Kildonan East 13, Arthur 12, St. Boniface 8, Melita 7, Dauphin Town 6, Flin Flon 6, Rockwood 6, Transcona 4, Selkirk 3, Thompson 3, Morris Town 2, Portage City 2, St. James 2, Brenda 1, Dauphin Rural 1, Edward 1, Franklin 1, Kildonan West 1.

Whooping Cough: Total 49—Winnipeg 28, Lawrence 7, Unorganized 6, Hanover 3, Arthur 1, Brandon 1, Flin Flon 1, Minitonas 1, Swan River Rural 1.

Tuberculosis: Total 32—Winnipeg 8, Unorganized 4, Kildonan North 2, St. Boniface 2, St. Vital 2, Boulton 1, Cartier 1, Cypress North 1, Dauphin Rural 1, Ellice 1, Gimli Town 1, Grandview Rural 1, Hanover 1, Kildonan East 1, Minnedosa 1, Rockwood 1, Rosser 1, Shell River 1, Siglunes 1.

Diphtheria: Total 25—St. Clements 12, Winnipeg 6, Bifrost 2, Hanover 2, Kildonan West 2, Flin Flon 1.

Erysipelas: Total 8—Winnipeg 5, Portage City 1, Selkirk 1, Transcona 1.

German Measles: Total 4—Brandon 4.

Smallpox: Total 3—Shell River 2, St. Francois 1.

Trachoma: Total 3—Hanover 3.

Diphtheria Carrier: Total 3—Winnipeg 3.

Typhoid Fever: Total 2—Birtle Town 1, Tache 1.

Lobar Pneumonia: Total 2—Brandon 1, Strathcona 1.

Influenza: Total 1—Winnipeg 1.

Veneral Disease: Total 116—Gonorrhoea 66, Syphilis 50.

DEATHS FROM ALL CAUSES IN MANITOBA
For the Month of December, 1938

URBAN—Cancer 37, Pneumonia 18, Tuberculosis 4, Septic Throat 3, Influenza 2, Syphilis 2, Whooping Cough 2, Chickenpox 1, Typhoid Fever 1, Erysipelas 1, all others under 1 year 27, all other causes 191, Stillbirths 15. Total 304.

RURAL—Pneumonia 24, Cancer 23, Tuberculosis 11, Influenza 9, Typhoid Fever 2, Erysipelas 2, Cerebro Spinal Meningitis 1, Chickenpox 1, Diphtheria 1, Puerperal Septicaemia 1, all others under 1 year 26, all other causes 165, Stillbirths 14. Total 280.

INDIANS—Tuberculosis 12, Influenza 4, Whooping Cough 3, Pneumonia 1, all others under 1 year 1, all other causes 3, Stillbirths 1. Total 25.

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Others as required.

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Medical Library
University of Manitoba

Current Medical Literature

"The Practitioner"—April, 1938.

"Emergencies in Cardiac Disease," by A. Hope Gosse, M.D., F.R.C.P., Physician to Out-Patients, St. Mary's Hospital; Physician to the Cardiac Department, Brompton Hospital.

"Emergencies in Respiratory Disease," by F. G. Chandler, M.A., M.D., F.R.C.P., Physician, St. Bartholomew's Hospital; Senior Physician, the London Chest Hospital.

"Diagnosis and Treatment of Haematemesis," by J. L. Livingstone, M.D., F.R.C.P., Physician, King's College Hospital; Assistant Physician, the Brompton Hospital.

"The Problem of the Acute Abdomen," by Philip H. Mitchiner, M.D., M.S., F.R.C.S., Honorary Surgeon to H.M. the King; Surgeon, St. Thomas's Hospital.

"Medical Emergencies in Kidney Disease," by Arthur Ellis, M.D., F.R.C.P., Director, Medical Unit, London Hospital; Professor of Medicine, University of London.

"Stroke," by Wilfred Harris, M.D., F.R.C.P., Consulting Physician, St. Mary's Hospital; Physician, the Maida Vale Hospital for Nervous Diseases.

"Coma," by C. M. Hinds Howell, M.A., D.M., F.R.C.P., Consulting Physician, St. Bartholomew's Hospital; Physician, the National Hospital, Queen Square, London.

"Acute Insanity," by T. S. Good, M.A., M.R.C.S., L.R.C.P., Physician for Nervous Diseases, Radcliffe Infirmary, Oxford.

"Infantile Convulsions," by Richard W. B. Ellis, M.A., M.D., M.R.C.P., Assistant Physician for Children's Diseases, Guy's Hospital; Physician, The Infants Hospital, Vincent Square, London.

"The Primary Treatment of Facial Injuries," by Sir Harold Gillies, C.B.E., F.R.C.S., Hon. F.A.C.S., Plastic Surgeon, St. Bartholomew's Hospital, the London County Council, the Royal Air Force, St. Andrew's Hospital, Dollis Hill, and the North Staffordshire Royal Infirmary, Newcastle-upon-Tyne.

"The Minor Surgical Emergencies of Industry," by William Blood, M.R.C.S., L.R.C.P., Medical Officer, F. Lyons and Co., Ltd.

"Midwifery Emergencies," by Donald McIntyre, M.D., F.R.C.S. (Ed.), F.C.O.G., Surgeon, Royal Samaritan Hospital for Women, Glasgow.

"Gynaecological Emergencies," by Alexander Galletly, M.C., M.B., F.R.C.S., Surgeon, the Chelsea Hospital for Women.

"Surgical Emergencies in the Genito-Urinary System," by W. D. Doherty, M.Chir., F.R.C.S., Surgeon, Genito-Urinary Department, Guy's Hospital.

"Some Emergencies in Oto-Rhino-Laryngological Disease," by F. G. Wrigley, M.D., Assistant Aural Surgeon, Manchester Royal Infirmary.

"Ophthalmic Emergencies," by G. W. Black, M.B., F.R.C.S., Ophthalmic Surgeon, Surgeon, General Infirmary, Leeds.

"Diet in Health and Disease: X.—Diet in Nervous and Mental Disorders," by William Sargant, M.B., M.R.C.P., and Russell Fraser, M.B., M.R.C.P. (From the Psychiatric Unit, Maudsley Hospital, London).

"Acute Food Poisoning," by Julius Burnford, M.B., F.R.C.P., D.P.H., Senior Physician, the West London Hospital.

"Artificial Respiration," by G. P. Crowden, D.Sc., M.R.C.P., Reader in Industrial Physiology, University of London, London School of Hygiene and Tropical Medicine.

"Post-Graduate Medical Journal"—April, 1938.

"The Male Climacteric," by Kenneth Walker, M.A., M.B., F.R.C.S., Lecturer in Venereal Disease and Officer in Charge Venereal Department, St. Bartholomew's Hospital; Surgeon in Charge Genito-Urinary Department, Royal Northern Hospital; Surgeon, St. Paul's Hospital for Genito-Urinary Diseases.

OBITUARY

DR. WILLIAM CHESTNUT

Dr. William Chestnut died February 7th of coronary thrombosis at his residence, in his 72nd year. He was born in County Antrim, Ireland, graduated in Arts and had one year's study in theology from McGee College, Londonderry. Coming to Canada 41 years ago, he completed his theological course in Manitoba College. He took up the study of medicine with the view of entering the foreign mission field and graduated in 1898, receiving the University Silver Medal, the Lt.-Governor's Silver Medal, and the Munro-Proctor Gold Medal. Owing to an eye accident he did not enter the foreign mission field, but began practice in Winnipeg. He was Medical Superintendent of the Winnipeg General Hospital from 1900 to 1903, and then resumed private practice. For a number of years he was on the Honorary Attending Staff of the Winnipeg General Hospital, and was also Assistant Professor of Medicine in the Faculty of Medicine.

DR. WILLIAM HENRY RENNIE

Dr. William Henry Rennie, Portage la Prairie, died suddenly on February 6th, aged 66. Born in Wellington County, Ont., he graduated in medicine from the University of Toronto, and practiced in 1909 at Wardville, near London, Ont. In 1910 he went to Portage la Prairie and has continued in active practice up to the time of his death. He was Officer of Health of the Rural Municipality of Portage la Prairie, a former President of the College of Physicians and Surgeons of Manitoba, and a member of the Executive of the Manitoba Medical Association. He is survived by his widow, a daughter, and three sons, two of whom, Dr. James Rennie and Dr. Jack Rennie, are taking post-graduate work in Edinburgh, Scotland.

FRANK WYETH HORNER

Frank Wyeth Horner, aged 63 years, died on February 9th in Montreal. He was president of Frank W. Horner Limited, manufacturing chemists, Montreal. For some years he was a governor of the Montreal General Hospital.

Civil Service of Canada

BACTERIOLOGIST WANTED

The Civil Service Commission announces open competitive examination for the following position:—

Comp. No. 28592. An Assistant Bacteriologist, Male, in the Laboratory of Hygiene, Health Branch, Department of Pensions and National Health, Kamloops, B.C., at an initial salary of $2,040 per annum. While a temporary appointment only may be made at present, this examination will qualify for permanent appointment. In the event of permanent appointment, the initial salary of $2,040 may be increased upon recommendation for meritorious service and increased usefulness at the rate of $120 per annum until a maximum of $2,520 has been reached.

Preference will be given to qualified candidates who have resided in the Province of British Columbia for a period of at least one year immediately preceding the closing date for the receipt of applications.

Duties.—Under supervision to undertake bacteriological investigation of certain pathogenic micro-organisms; to perform various serological procedures, to assist in research and in the routine work of the laboratory.

Qualifications required.—Graduation in medicine or in science with major specialization in bacteriology from a university of recognized standing; at least one year of post-graduate experience in pathogenic bacteriology; credit will be given for any additional bacteriological experience; demonstrated ability to conduct independent investigations; supervisory ability; good address. While no definite age limit has been fixed, age may be a determining factor in making a selection.

Nature of examination.—A rating on education and experience will be given from the sworn statements, supporting documents and other evidence submitted by applicants. Candidates must give full particulars regarding their technical training and experience, especially as they bear on the qualifications for and duties of this position. An oral examination may be given if necessary in the opinion of the Commission. No examination fee is required.

An eligible list valid for a period of one year may be established.

NICOTINIC ACID B.D.H.

The recent differentiation of "Vitamin B2" into three factors (lactoflavine, "pellagra - preventing" factor and B6, the rat-dermatitis factor), followed by the investigation on the administration of nicotinic acid to pellagrins (Journ. Amer. Chem. Soc., 1937, 59, 1767 and Nature, 1937, December 18th, p. 1070), established the specificity of nicotinic acid in pellagra. Confirmation of this discovery is afforded by more recent reports (Journ. Amer. Med. Assoc., December 18th, 1937, p. 2054 and Lancet, January 29th, 1938, p. 252) and it has been shown that nicotinic acid is a precursor of the "pellagra-preventing" factor which is elaborated after the ingestion of this substance.

Nicotinic Acid B.D.H., for the treatment of pellagrous symptoms, is available in tablets each containing 30 mg. of the pure substance, and prices may be obtained from The British Drug Houses (Canada) Limited, Terminal Warehouse, Toronto. —Advt.

The Manitoba Medical Association Review

Vol. XIX., No. 4, April, 1939.

CONTENTS

Clinical Section

Results with the Friedman Test for Pregnancy*

By

A. T. CAMERON, M.A., D.Sc. (Edin.)
F.I.C., F.C.I.C., F.R.S.C.
Professor of Biochemistry, University of Manitoba
Biochemist to the Winnipeg General Hospital

Of the various biological and chemical tests proposed during the last dozen years as suitable for diagnosis of pregnancy only two have been generally recognized as satisfying the trinity of demands (1) accuracy, (2) reasonable ease of performance, and (3) speed in yielding a result. These are the Aschheim-Zondek test with immature female mice, and its modification, the Friedman test with non-pregnant adult female rabbits.

These are actually tests for the presence of APL (prolan) in urine, this protein compound being formed by chorionic tissue from the foetal part of the placenta. Positive results may therefore be given in pregnancy, in incomplete abortion, in cases of hydatidiform mole, and in cases of chorionepithelioma, and when a test is reported positive the differentiation between these possible causes rests with the clinician and not with the laboratory reporting the test.

For a positive result sufficient APL must be excreted in urine to give a detectable reaction when a total of 20 c.c. or less of that urine is injected into a rabbit in two stages. When one bears in mind the amount of functioning chorionic tissue (or its precursor) present 10 days after a missed period (that is, some 14 or 15 days after nidation), along with the fact that at this early stage of pregnancy a definite result is to be expected, the activity of this hormone of the ovum is obviously enormous.

Since January, 1934, Friedman pregnancy tests have been carried out for the medical profession of the Province of Manitoba and adjacent areas in the Department of Biochemistry of the University of Manitoba, under the auspices of the Medical Research Committee of the University. The work has been directed by a sub-committee consisting of Dr. D. S. Mackay, Dr. Ross Mitchell, Dr. A. S. Kobrinsky, and the writer.

The initial costs of the work were defrayed by a grant from the College of Physicians and Surgeons of Manitoba. Since the work had to be self-supporting pre-payment of the fee ($5.00) was laid down by the Committee as essential. In a few instances the test has been done without charge for purposes of research, but each such case has needed the consent of two members of the Committee. All requests for free tests in cases of routine nature have been refused. No charge is made for repetition of a test where the first result is in any way doubtful.

The numbers of paid tests done during the five years 1934-38 were, respectively: 98, 142, 163, 272, 270 (total, 945). The corresponding figures including repetitions and 12 tests done for research are 109, 159, 192, 290, 289 (1,039 in all).

In these five years tests have been made for 231 physicians, of whom 170 reside in Greater Winnipeg (including St. Boniface), 36 in Manitoba (excluding Greater Winnipeg), 4 in Ontario, 20 in Saskatchewan, and 1 in Alberta. The number of paid tests done for individual physicians varied from 1 to 36. The majority of patients were from Greater Winnipeg, but the precise proportion cannot be stated, as many from outside this area had been referred to Winnipeg physicians, who sent us the urine-samples.

Procedure. Female rabbits weighing four pounds or more have been used. In a few instances, due to shortage of animals, ovaries of rabbits only recently obtained were examined before test by laparotomy, under sufficiently aseptic conditions, to ensure absence of haemorrhagic follicles and corpora lutea. Otherwise, each rabbit was segregated a month before use.

Two injections of urine into an ear vein were made with an interval of 24 hours between, each of 7 to 8 c.c. of a morning sample (because of its greater concentration). (If a morning sample was not available, a somewhat larger volume was injected). Twenty-four hours after the second injection the rabbit was killed by chloroform and its ovaries examined. Presence of haemorrhagic follicles or of craters (formed at ovulation, and preceding the haemorrhage into the follicles) or of both, constituted a positive result.

In a few instances, due again to shortage of test animals, rabbits were examined surgically, so that they could be used again after a sufficient interval. This procedure was used as seldom as possible, for it was economically cheaper to use a fresh rabbit for each test, largely because of the time involved in operation.

In the majority of cases one animal was used per test. If the result was at all uncertain we requested the physician to obtain a fresh sample of urine for repetition of the test. In cases of suspected hydatidiform mole, potential chorionepithelioma, or potential teratoma of the testis, additional tests with small amounts of urine (0.5 + 0.5 c.c.) were usually carried out. Schoeneck (1) has shown that the rabbit gives some degree of quantitative response.

To ascertain accuracy of the test, and to obtain as much information as possible bearing upon its usefulness, a questionnaire has been sent to the doctor concerned, along with each report, asking for the final clinical findings. When no reply has

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To ascertain accuracy of the test, and to obtain as much information as possible bearing upon its usefulness, a questionnaire has been sent to the doctor concerned, along with each report, asking for the final clinical findings. When no reply has

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been received within six months, a second questionnaire has been mailed. The response has been gratifying. Final reports have been received from the physicians concerned in 784 of 887 tests carried out in the period January, 1934, to June, 1938, inclusive. Seventeen of these were on male patients. For 100 of the remainder no definite information could be given us. The remaining 667 tests can be analysed. (Insufficient results are as yet available to check the last six months of 1938).

Accuracy of results. In considering these, errors of interpretation must be distinguished from errors inherent in the method itself. In considering critically the notes made of our earlier results it is obvious to us now that we were sometimes too optimistic in labelling doubtful results positive; our doubt was due to presence of large, opalescent, pinkish follicles, not truly haemorrhagic. In most of such cases we were able to repeat the test and get accurate results, but in at least seven (reported by us "doubtfully" or "just positive") for various reasons this could not be done, and these errors are therefore errors of interpretation, which should be excluded in assessing the value of the test. As far as we know, no errors of this type have been made in the later tests. We have therefore divided the results into two groups, those for 1934-35, and those for 1936-June, 1938. They are shown in Table I.

TABLE I.

	Results of Tests 1934-35		1936-June, 1938	
Negative Results				
Correct	102		238	
Errors	1	(1.0%)	3	(1.3%)
Positive Results				
Correct	80		223	
Errors of interpretation	7			
Errors of test	5	(5.4%)	8	(3.5%)
Total error of test	6	(3.1%)	11	(2.3%)

These figures may be compared with those of McHenry and Best (1933, 1937). They record 2.0 per cent. of errors in a total of 2,897 tests for which clinical results were available (2.7 per cent. of incorrect negatives, 1.2 per cent. incorrect positives).

Causes of error. Excluding errors of interpretation, there are several potential causes of error in the test. Some test animals are described as "refractory"; it is of course possible that of a large number of rabbits obtained from various sources a small percentage may have endocrine or other disorders which affect the test.

The urine specimen may have been taken too early in a pregnancy, so that the excretion of APL is too small to produce any effect on the test animal. In such a case a negative result is intrinsically accurate, though, as judged by the sequel, apparently wrong.

Certain endocrine disturbances, especially those affecting the pituitary, can yield false positive reactions. McCullagh and Cuyler obtained 8 such reactions in 15 cases of pituitary disorders in non-pregnant women.

It is not improbable that missed abortion, especially ectopic abortion, is responsible for many apparently false positive reactions, so that the error of test, as calculated above, is always to be regarded as a maximum and possibly too high a figure. The following two cases from our series illustrate the difficulty sometimes experienced in checking the result of a test.

(1) A test on July 10, 1936, was faintly positive and repetition was requested. A second test on July 13 was made on two rabbits. One showed a markedly positive reaction, so that the second animal was not killed at that time. A curettage on the patient on July 16 showed decidua but no villi. Tubal pregnancy was therefore suspected and the patient was operated on on July 20. Nothing was found in uterus or tubes. Hence the second rabbit referred to above was killed and examined on July 23. There were definite large corpora lutea present, two in one ovary and three of more in the other. It is thus difficult to believe that our findings were incorrect, though impossible to state whether they were produced by APL or some other endocrine compound.

(2) The test was made a few days after a missed period. It was definitely positive, with large haemorrhagic follicles present in each ovary. The patient (living some distance from Winnipeg) soon afterwards wrote her Winnipeg physician that she was not pregnant. He considered that the test might well have been correct, but it remained in our list of apparent errors for 18 months, until the patient subsequently acknowledged that she had passed a foetus soon after the test was made.

Cases associated with hydatidiform mole. During 1934-38 our series included (a) two cases of hydatidiform mole, and (b) eight cases studied following expulsion of hydatidiform mole. The two cases prior to expulsion of mole are recent, and the subsequent history not yet definite. The other eight present some features of interest. In six of the eight, results were negative or became so on repetition. These results are as follows, the time intervals referring to time from expulsion of the mole:

(1) Positive at 7 days, negative at 34 days; in good health 5 years later.

(2) Negative at 67 days; in good health 3 years later and now seven months' pregnant.

(3) Positive at 43 days, negative at 100 days. In good health 19 months later, with normal birth of a child in the interval.

(4) Positive at 7 days, negative at 39 and 95 days.

(5) Negative at 16, 39 and 106 days.

(6) Negative at 17, 89 and 200 days.

These cases indicate that a positive APL reaction may disappear in just over a fortnight after expulsion of a mole, or may persist for six weeks, without chorionepithelioma subsequently developing.

In the seventh case (one of the earliest referred to us) three tests spread over a month were all definitely but not markedly positive. Hysterectomy was subsequently performed. The pathologist found no trace of chorionepithelioma tissue. A subsequent Friedman test was negative. We believe it probable that all four tests were correct.

In the last case of the series a hydatidiform mole was expelled on October 28, 1938, at the end of the fourth month of pregnancy. Subsequently, on the 33rd, 70th and 82nd days, positive Friedman tests were obtained. On the 82nd day a positive Aschheim-Zondek test also resulted. None of the tests were markedly positive though all were definite. On the 82nd day hysterectomy was performed, and a syncytioma found. A test 13 days later was negative. (A full report of this interesting case will be made by the clinician).

Our results are in general agreement with the series of 15 reported by Cosgrove in 1938, of which 3 progressed to chorionepithelioma. Of these 3, one gave positive results up to the 60th day with hysterectomy on the 68th day and subsequent good health. A second gave a positive test on the 4th day, and negative tests on the 12th, 18th and 21st days, but bleeding commenced on the 33rd day and Friedman tests were positive three times in the next 18 days, so that a total hysterectomy was done; the patient was well a year later.

Among Cosgrove's 12 cases which did not progress, negative tests were obtained as early as 6 and 7 days after expulsion, while positive tests were obtained as late as 29 days.

Mathieu (1937) states that 80 per cent. of the chorionepitheliomas in his series were found within 20 days of the passage of a mole. It seems to be the consensus of opinion that persistence of a Friedman or Aschheim-Zondek reaction for more than six weeks is strong indication of chorionepithelioma (cf. Zondek, 1937; Phaneuf, 1937).

Cases associated with dead foetus. The following cases have interest.

(1) L.M.P. August 3, 1933. The patient fell in November, 1933, since when there was irregular bleeding from the vagina. Symptoms suggested a dead foetus. A Friedman test February 6, 1934, was extremely positive, another, two days later, slightly positive. On February 9 the patient was delivered of a dead foetus weighing 210 gm., and estimated to be 17 weeks old. The placenta was partly detached, sufficiently to lead to death of the foetus, but enough was still attached and functioning to give a positive Friedman test.

(2) Patient had been pregnant for 7 months. The foetus was alive on February 1, 1936, and was believed to be dead on April 15. A Friedman test on April 22 was definitely positive. A dead foetus was delivered on April 24.

(3) L.M.P. July 15, 1936. A Friedman test on April 15, 1937, was negative. An abdominal hysterectomy was performed on April 22, and a 14 weeks' foetus removed, estimated to have been dead six months. The uterine contents were completely separated. (cf. Mitchell, 1937).

(4) Patient believed to be two months' pregnant. Friedman tests on November 11 and 15, 1937, were positive. Subsequent examination showed that the foetus had been aborted, but that a piece of retained placenta was responsible for the positive test. (Our series includes a second case, almost exactly parallel to this).

It is obvious that a positive test does not give definite information in cases of suspected intrauterine death. Bishop (1935) states that a positive result may persist as long as three months after the death of a foetus. While any functioning chorionic tissue remains the test will be positive.

Comments on other cases. While we have carried out a number of tests in cases of presumed ectopic pregnancy our data are too incomplete to attempt to evaluate the accuracy of the test in this condition. (The degree of accuracy is undoubtedly less).

As bearing on the earliest stage of pregnancy at which a positive result can be expected with certainty, we have had a correct result five days after a missed period (in a case with a 24-25 days' cycle) and other correct results at seven, eight and nine days (remembering that estimation of dates of menstrual periods is only an approximation). When we can, we avoid doing the test until at least ten days have elapsed.

We have carried out tests on a number of urines from males in cases of suspected teratoma of the testis. Since the rabbit-test is not very quantitative, unless a number of animals are employed for each test (a costly procedure), and since the present classification of testicular tumours is by no means clear-cut, the Friedman test is not very satisfactory for such cases. Our results showed no consistent parallelism with the labelled histology of the tumours removed at orchidectomy, although in cases where metastases were known to be present positive results were always obtained.

Evidence concerning the result of a test has had to be given in one legal case. Since the test cannot be stated to be 100 per cent. accurate its results can only be regarded as contributory supporting evidence in any legal case.

Urines are frequently toxic to the test animal, which, in a small proportion of cases, dies within the 48-hour period. In several of these instances the toxicity appeared to be due to administration to the patient of nembutal or some other of the phenobarbital series of drugs. The toxicity of a urine probably in no way affects the result of the test if the animal survives the 48-hour period. Highly toxic urines can in most cases be rendered sufficiently innocuous by ether-extraction, followed by aeration.

In confirmation of other observers we have found that urines sent from a distance can be satisfactorily preserved by addition of boracic acid. About a third of a gram to 60 to 90 c.c. is adequate (roughly, as much as will go on a ten-cent piece to two to three ozs. of urine).

I desire to acknowledge the continued careful assistance of Miss Jean Guthrie, and Messrs. John Carmichael and Reginald Cotton in carrying out the tests.

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Diagnosis of Gastric Lesions Aided by Gastroscopy*

By

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Before 1932 gastroscopy was rarely performed, and by only a few operators. The risks of passing the instrument were not formidable but had nevertheless to be kept constantly in mind. Since that time Schindler's improved instrument containing as it does the flexible optical system invented by Wolf has reduced the hazards of the procedure to almost negligible proportions. In February, 1933, we began doing gastroscopic examinations at the Winnipeg General Hospital with the instrument devised by Roger Korbsch. During the past twelve months both types of instruments have been used and while the Schindler instrument is introduced with greater ease and safety, the Korbsch instrument, once the stomach has been entered, has certain advantages over the flexible instrument. To begin with there is always a constant relationship between the optic and the small indicator on the eye-piece, and the details of the field of vision stand out more clearly.

Gastroscopy does not replace x-ray in the diagnosis of gastric lesions. It is to be considered only as an adjunct in selected cases, especially those in whom x-rays have been negative or difficult to interpret. If a gastroscopic clinic is to be established, it should be in the x-ray department, so as to facilitate the closest possible co-operation between the radiologist and the gastroscopist. The earlier the disease can be inspected, the more value is to be derived from this co-operative effort. Because of the great expense in equipment, expensive repairs, etc., and the fact that a large experience is required before accurate interpretation of findings is possible, gastroscopy is not likely to come into general use. However, every large hospital in which much investigation of gastric disease is done, would increase its usefulness by the introduction of gastroscopy. The increased accuracy of observation and the opportunity of studying the course of intrinsic lesions are both important reasons why this should be done. It is axiomatic that whenever a lesion can be inspected directly the more indirect methods of examination should not be relied upon exclusively. This principle has been accepted in other fields such as bladder, rectum, oesophagus and bronchi. The stomach should be no exception to this rule.

Indications for and Technique of Gastroscopy.

The gastroscope can be passed with safety and with a minimum of discomfort in most patients into whose stomach a large Ewald tube can be introduced. Anything that prevents passage of stomach tube precludes gastroscopy, i.e., aortic aneurysm, organic stricture, diverticula of the oesophagus or oesophageal varices. The passage of the instrument is rendered difficult by the presence of prominent teeth or by a marked kyphosis.

Indications.

Gastroscopy is indicated:

1. In any patient in whom complete physical and radiographic examination is either negative or inconclusive, if the history suggests an intragastrc lesion.

2. To confirm or check meagre or indefinite radiographic findings. This includes the differential diagnosis between early malignant and innocent gastric ulcers.

3. Before any purely exploratory upper abdominal laparotomy is performed.

4. In all post-operative stomachs with persistent or recurrent symptoms.

5. In all cases of unexplained hematemesis or melaena.

6. In all patients with persistent symptoms

* Delivered at the Annual Meeting of the Ontario Medical Association, Toronto, May, 1938, and at the Manitoba Medical Association, at Winnipeg, September, 1938.

following cholecystectomy, especially where gall bladder pathology was doubtful.

The examination is performed with the patient in the fasting state. Routine preliminary sedative is not necessary although sometimes advisable with nervous patients. To give atropine in a physiological dose, would add greatly to the patient's discomfort. The pharynx and hypo-pharynx are anaesthetized with 2% solution of pantocaine using an especially curved applicator. A syringe enables the absorbent on the end of the applicator to be kept constantly moist without being removed and re-inserted. A large stomach tube is passed and the stomach contents evacuated.

The patient is turned on the left side, the hips flexed and the head extended on the trunk. The patient's head and trunk is supported by an assistant who stands behind him. This position accomplishes the twofold purpose of bringing the mouth in line with the oesophagus, and allowing the pylorus to gravitate toward the left, thus approximating it to the tip of the instrument. The instrument is now introduced in the same way as the stomach tube. The patient is instructed to swallow as the instrument reaches and passes through the hypo-pharynx. All the dangers of gastroscopy are connected with the passage through the oesophagus. Once the instrument has entered the stomach the risk is practically over. The instrument is passed on into the stomach as far as it will go. In over 75% of cases this should bring the pylorus into view. The stomach is inflated with air and the examination begun. Undue intragastric pressure results in erucation of gas, so that there is no danger of over distending the stomach.

In common with other tests a positive finding is usually conclusive and fairly readily interpreted. A negative finding gives rise to more difficulty for there are four small "blind areas" in which an intrinsic lesion might be overlooked, viz., close to cardia on both curvatures, on the greater curvature opposite the incisura, and on the lesser curvature distal to the incisura, in the J-shaped stomach. The normal gastric mucosa as seen through the gastroscope is a deep orange red color. The shade varies with the intensity of the light and the distance of the mucosa from the optic. The surface is thrown into irregular folds or rugae. At the incisura one sees a fold which at times actually separates the pyloric antrum from the cardiac end. Schindler has described this action and regards it as due to the musculus sphincter antri. The beginner could readily confuse this with the pyloric sphincter and misinterpret the pyloric antrum and cardiac end. The former is in constant motion; the latter can be observed to be quiescent for quite appreciable periods except for movements due to respiration. As this instrument is being withdrawn the cardiac opening of the stomach is seen as an oedematous-looking ridge, to be followed suddenly by the smooth pink mucosa of the oesophagus.

Gastritis.

The introduction of the gastroscope has revived the interest of the profession in this entity. Many years ago the diagnosis of gastritis was commonly made. It rested largely on subjective evidence. We are now in a position to place this diagnosis on the accurate basis of objective findings.

Acute gastritis is frequently diagnosed especially when the history reveals any indiscretion in food or drink. To date we have not had the opportunity of examining the gastric mucosa immediately following such an attack. It is very likely that repeated episodes of this kind develop ultimately into some form of chronic gastritis.

There is no simple classification of gastritis based on etiological or morphological evidence. At present we have to content ourselves with describing gross anatomical changes in the gastric mucosa realizing that it is difficult to correlate the findings with the clinical picture presented by the patient. As in other gastro-intestinal disorders there is no constant relationship between the severity of the symptoms and the changes visible in the mucosa. Chronic gastritis either of the superficial or hyperplastic types may closely mimic chronic gall bladder disease, ulcer or malignancy. Physical examination and functional tests give little assistance in differential diagnosis in these cases. While hypoacidity and anacidity occur in 68% of cases; hyperacidity is present in 11% and a normal acidity in 21% (Henning). The x-ray evidence is at best only suggestive and open to wide variations in interpretation. In this condition the gastroscope is almost indispensible if absolute accuracy in diagnosis is demanded.

In the present state of our knowledge the classification of gastritis as suggested by Schindler is the most practical.

1. Superficial gastritis.
2. Hypertrophic gastritis.
3. Atrophic gastritis.
4. Gastritis in operated stomachs.

Superficial Gastritis.

The superficial type has many variations. It may be localized or diffuse, primary or secondary to other lesions, e.g., ulcer or carcinoma. The mucosa is hyperaemic with occasional hemorrhagic spots. There is considerable increase in the mucus. The mucosa is more readily injured by the stomach tube or gastroscope. That these changes are transient and that they respond readily to treatment has been proven by repeated gastroscopy in these cases. It is also likely that such changes are the forerunners of the more serious chronic hypertrophic gastritis.

Hypertrophic Gastritis.

Hypertrophic gastritis presents a variety of pictures depending on the severity and duration of the lesion. The mucosa is thrown into prominent folds deep red in color, markedly oedema-

tous, nodular and ragged. In the advanced cases multiple erosions are seen. They vary from pin point areas to erosions of moderate size. The aetiological factors in chronic gastritis are physical, chemical and bacterial irritation. The onset is insidious. The history of recurring epigastric distress extends over a period of months and years. Simple dietary measures control it at first. As the lesions progress pain and flatulence increase. Occasionally nausea is prominent. The gastric acidity varies, but as the disease progresses, hypoacidity becomes the rule. This may be due partly to the neutralizing effects of the copious secretion of the alkaline mucus.

Atrophic Gastritis.

The mucosa presents a flat pale surface with prominent blood vessels distinctly visible. This type is characteristic of pernicious anaemia and may be observed in other marked chronic anaemias. The association of a gastric malignancy with a blood picture suggesting pernicious anaemia is not uncommon. Hurst considers atrophic gastritis to be a precursor of gastric malignancy.

Post-Surgical Gastritis.

One of the most fruitful fields for the gastroscopist is in the post-operative case. Radiological difficulties in such cases are notoriously great. Deformities seen radiographically are most difficult to interpret. It is with such cases that the gastroscopist can render greatest service to the radiologist and to the clinician. It has been shown that large numbers of cases returning with symptoms following resection or some anastomosis have symptoms due to gastritis. The percentage of gastritis causing symptoms is very much greater than stoma ulcer. Some observers suggest that most operative stomach cases show some gastritis. While microscopic examination may frequently demonstrate gastritis, gross study does not yield such a high percentage of positive findings. We have proven this to be the case in a number of patients with good functioning gastro-enterostomies who show a complete absence of superficial gastritis.

In this connection the following case is of interest, demonstrating that perianastomotic gastritis may be mistaken for stoma ulcer:

In 1922 a posterior gastro-enterostomy was performed for chronic duodenal ulcer. The patient remained perfectly well until October, 1935, when he had two attacks of mild epigastric pain. A month later he suffered a severe gastric hemorrhage. He developed a chronic secondary anaemia and a more or less constant epigastric distress, which persisted. In April, 1936, he was investigated. A barium series was negative. No evidence of stoma ulcer was demonstrable, and his gastric acidity was low. There was occult blood in the stool. He had marked dental sepsis, with pus exuding from the gums. Gastroscopic examination revealed a superficial perianastomotic inflammation, with pin-point haemorrhagic spots. The jejunal mucosa was not observed. The stoma was patulous and according to the radiographic evidence was functioning well.

Another case reported for gastric hemorrhage in whom eight years previously a gastro-enterostomy had been done for proven duodenal ulcer. X-ray was interpreted as suggestive of hypertrophic gastritis. Gastroscopy showed the mucosa in the fundus of the stomach to be normal. In the pyloric end of the stomach was a carcinoma invading the gastro-enterostomy stoma. Subsequent examination of the radiographic made clear that the defect interpreted as due to hypertrophic gastritis did not show the linear markings or pattern one expects to see in hypertrophic gastritis.

Gastric Ulcer.

Gastric ulcers can be so accurately diagnosed by radiologist that in 95% of cases the information he provides cannot be added to by the gastroscopist. However in several cases we have been able to detect gastric ulcers that had not been reported radiologically. Two of these ulcers could not be demonstrated by any radiographic technique. Gastroscopic examination if negative does not absolutely rule out the presence of an ulcer. One should recall the existence of the so-called "blind areas" especially the one on the lesser curvature near the pylorus, and realize that an ulcer in this location may not be seen. Admittedly routine gastroscopy is not essential in the diagnosis and treatment of ulcer. However, it is in this field that some of our most instructive observations have been made, first with the detection of lesions that had been overlooked, second in following the response to treatment and in proving that healing is not complete until some time after all radiographic evidence of ulcer has disappeared.

Gastric ulcers may be classified from the gastroscopic standpoint as follows:

1. *Superficial erosions,* usually multiple and frequently associated with varying degrees of chronic gastritis. These lesions are of clinical importance for the reason that they produce epigastric pain and frequently give rise to profuse haemorrhage. These superficial mucosal lesions can only be demonstrated by gastroscopy.

2. *Subacute ulcers* are seen as small dark punched-out areas in the mucosa. The surrounding mucosa is thick and oedematous for a considerable distance around the ulcer. *The presence of this oedema and local muscular spasm of the muscularis mucosae accentuates the apparent depth of the ulcer crater which radiographically often has the appearance of a deep penetrating ulcer.* As a matter of fact penetrating gastric ulcers are relatively uncommon and should not be reported as such by the radiologist unless the evidence is very conclusive. Subacute ulcers respond rapidly to medical treatment, the rapidity of the response being due more to the subsidence of oedema and relief of spasm than to the filling in of an ulcer crater.

3. *Chronic ulcers.* Gastroscopically this type of lesion differs from the one just described in that the surrounding mucosa is practically normal in appearance. The ulcer is round or triangular, the edges sharply cut, the base shallow, greyish in color and fairly clean. Gastritis as an accompaniment of chronic ulceration is almost entirely absent in our series, an observation which is markedly in contrast with the conditions found in Central European clinics. In Germany the association of chronic gastritis with gastric ulcer is almost invariable, the pyloric antrum especially being involved. The differentiation between benign and malignant gastric ulcers is one sphere in which the gastroscopist can render valuable assistance.

Years ago three reasons seemed to call for surgical treatment in gastric ulcer:

1. The report of a penetrating ulcer by the radiologist, especially in a patient with a long ulcer history.

2. The presence of an hour-glass deformity in the stomach.

3. Uncertainty about the benignancy or malignancy of an ulcer.

Subsequent experience and latterly gastroscopic studies have shown that these are not definite indications for surgery. So-called perforating gastric ulcers are comparatively rare; the appearance of depth in the ulcer crater is due to the causes already mentioned. The hour-glass stomach is rarely the result of an organic constriction but is a radiographic artefact due to localized spasm. These cases can readily be gastroscoped and the absence of scar contracture proven. The differentiation between benign and malignant lesions seen through the gastroscope may be very difficult at one examination. Some cases that are difficult radiographically may be definitely diagnosed with the gastroscope. Others may require observation and examination from week to week under treatment in order that a definite decision be made. Still others require exploration and microscopic examination to complete the differentiation. One of the chief reasons for our failure to diagnose early gastric ulcer is the fact that the history is a rather atypical mixture of symptoms suggestive of gall bladder disease and peptic ulcer, but not definitely either one. When both these lesions are ruled out radiographically, one is apt to decide the symptoms are functional in origin and to treat them as such without giving due thought to the possibility of an intrinsic gastric lesion. The difficulty in making a clinical diagnosis is equalled by the difficulty experienced by the radiologist in demonstrating some gastric ulcers, especially those situated on the anterior or posterior gastric wall away from the lesser curvatures. Ulcers on the posterior wall of the pyloric antrum frequently present a history of flatulent dyspepsia with irregular pain and qualitative food effects.

Gastric ulcer differs from duodenal ulcer in some important respects which are best made clear by contrasting the two lesions. Duodenal ulcer patients when diagnosed and put on treatment do not necessarily have to be followed by the clinician. They will unfailingly report if important developments such as perforation or hemorrhage arise. If the clinician has made an error in the diagnosis of the cause of the duodenal lesion, the error is not likely to be disastrous. Gastric ulcer patients, on the other hand, must be kept strictly under the observation of the clinician for the following reasons:

1. In order that the response to treatment be determined and proof of complete healing obtained on the basis of history, radiographic and if possible gastroscopic examinations.

2. In order to make sure that the diagnosis has been correct, and the lesion is actually a benign one and not an early malignancy. Any gastric ulcer patient who in four weeks fails to show a satisfactory response to medical treatment should be advised to submit to surgery. Every gastric ulcer patient should be informed that in a month's time, regardless of how he feels, the entire problem must be reconsidered, including a re-check of the radiographic examination.

Polyposis Ventriculi.

The gastroscope is used in polyposis to confirm the radiographic diagnosis, and to determine the proximity of the tumour to the oesophagus. In this way the extent of the resection required is gauged. The tumour projects into the lumen of the stomach, is sessile, and is purplish in color. We have seen only a small group of nine cases, four of which have been gastroscoped. In two of these cases malignant changes had occurred in the polypi, and this was proven by subsequent study. This change was not grossly evident on gastroscopic examination.

Carcinoma of Stomach.

The main reason for becoming interested originally in gastroscopy was the hope that one would be able to establish the diagnosis of carcinoma at an earlier stage of the disease. To date this hope has not been realized. Over a six-year period (February 1933-39) during which time over 225 stomachs have been examined, although we have been able to exclude carcinoma in some, and to establish the diagnosis in others, this does not warrant any extravagant claims for gastroscopy in this particular field. No progress can be made in the early diagnosis of carcinoma of the stomach until patients in the cancer age with recent indigestion are thoroughly investigated, and secondly until there is closer collaboration between the clinician, the radiologist and the gastroscopist. An even more important requisite to progress is the education of the public to the necessity of those over forty-five seeking early advice for recent abdominal distress. When we realize that 25% of all the deaths from cancer in Canada are due to cancer of the stomach, we must be impressed by the importance of early diagnosis and radical surgical treatment of this condition.

We have had the opportunity of examining the polypoid lesion projecting into the gastric lumen, and the malignant ulcer, excavating the stomach. The edge of the malignant ulcer is ragged and dark in color. The base is covered with necrotic material.

Recently the value of the gastroscope in differentiating extra-gastric from intra-gastric lesions has been shown. A patient had vague upper abdominal distress. Barium series showed a filling defect at the cardiac end suggesting a carcinoma. The gastroscope showed no mucosal lesion but a bulging which has since been proven to be due to a retroperitoneal lymphoma.

We believe it has been established that gastroscopy has a definite though limited field of usefulness. It is a permanent arm in our diagnostic equipment. In the small early mucosal lesion it is superior to any other method of examination. In the grosser lesion it is only complementary to radiography. There is every reason to believe that there will be further improvements in the construction of the instrument so that even the taking of biopsies may eventually be possible.

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